

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings of the claims in the application.

1. – 23. (Cancelled)

24. (Currently Amended) ~~The~~ The A synthetic mammalian expression plasmid of claim 1,
~~wherein the codon-optimized eukaryotic therapeutic gene sequence comprises SEQ ID NO: 7 of~~
~~claim 1, wherein the codon-optimized eukaryotic therapeutic gene sequence comprises~~
~~SeqID#7 for plasmid mediated gene supplementation in a species comprising:~~

- (a) a synthetic or eukaryotic promoter comprising SEQ ID NO: 15;
- (b) a codon-optimized eukaryotic therapeutic gene sequence comprising SEQ ID NO: 7;
- (c) a polyadenylation signal;
- (d) a selectable marker gene sequence;
- (e) a ribosomal binding site;
- (f) a promoter for the selectable marker gene sequence; and
- (g) an origin of replication;

wherein the synthetic or eukaryotic promoter, the codon-optimized-eukaryotic therapeutic gene sequence, and the polyadenylation signal comprise therapeutic elements of the syntetic mammalian expression plasmid; the therapeutic elements are operatively linked and located in a first operatively-linked arrangement; the selectable marker gene promoter, the ribosomal binding site, the selectable marker gene sequence, and the origin of replication comprise replication elements of the synthetic mammalian expression plasmid; the replication elements are operatively linked and located in a second-operatively-linked arrangement comprise a circular structure of the synthetic mammalian expression plasmid; and the synthetic mammalian expression plasmid is utilized for plasmid mediated gene supplementation in the species.

DOCKET NO. AVSI-0023
PATENT

SERIAL NO. 10/619,939
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25. – 28 (Cancelled)

29 (Currently Amended) A synthetic mammalian expression plasmid comprising ~~SEQ ID#19~~
Seq ID#19 SEQ ID NO:19.

30. -37. (Cancelled).